

C. REMARKS

Applicants respectfully request reconsideration of the outstanding rejections and reexamination of the present application in light of the following amendments and remarks.

Status of the Claims

Claims 1, 4, and 7 are currently pending. Claims 2, 3, 5, 6, and 8-21 are canceled.

In this Amendment, Applicants has amended claim 1 and canceled claims 2, 3, 5, 6, and 8-21 from further consideration in this application. Applicants are not conceding that the subject matter encompassed by claims 1-21, prior to this Amendment, is not patentable over the art cited by the Examiner. Claim 1 was amended and claims 2, 3, 5, 6, and 8-21 were canceled in this Amendment solely to facilitate expeditious prosecution of the remaining claims. Applicant respectfully reserves the right to pursue additional claims, including the subject matter encompassed in claims 1-21, as presented prior to this Amendment and additional claims in one or more continuing applicants.

Drawings

Applicants note that the Second Office Action does not indicate whether the drawings filed with the present application are accepted. Applicants respectfully request that in any subsequent actions or a notice of allowance, that the Examiner indicate his acceptance of the formal drawings currently filed in the present application.

Claims 1, 4, and 7 are not Obvious under Dorenbosch and Alkhatib under 35 USC 103(a)

The Office Action rejects claims 1, 2, 4, 5, 7, 8, 9, 11, 12, 14, 15, 16, 18, 19, and 21 under 35 USC 103(a) as being unpatentable over Dorenbosch (US Publication 2002/0138622) in view of Alkhatib et al. (US Publication 2004/0044778) (herein referred to as Alkhatib. [Office Action, p. 2] Applicants have canceled claims 2, 5, 8, 9, 11, 12,

14, 15, 16, 18, 19, and 21 and therefore the rejection is no longer applicable in the present application.

As noted in the Office Action, under 35 USC §103(a) a patent may not be obtained though the invention is not identically disclosed as described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. In *Graham v. John Deere*, the Supreme Court clarified that “under 103, in considering the obviousness or nonobviousness of the subject matter, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved, in addition to evaluating evidence of secondary considerations.” *Graham*, 383 U.S. 1, 148 USPQ 459 (1966).

The Examiner bears the initial burden of supporting any prima facie conclusion of obviousness. See *In re Rinehart*, 531, F.2d 1048, 189, USPQ 143 (CCPA 1976); *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007); MPEP 2142. The key to supporting a rejection under 35 USC 103 is the clear articulation of the reasons why the claimed invention would have been obvious; the analysis supporting a rejection under 35 USC 103 should be made explicit. See *KSR International Co.*, 82 USPQ2d at 1396; MPEP 2142 (Rev. 6, Sept. 2007).

Applicants have amended claim 1 and traverse the rejection of claims 1, 4, and 7 in view of the amendments to the claims. Although Applicants amend the claims in the present application, Applicants do not concede that the Examiner has established a prima facie case of obviousness as to the claims as originally presented.

Claim 1

Claim 1 currently reads:

Claim 1 (Currently Amended): A method for accessing a data processing system behind a network address translation (NAT) enabled network, comprising:

responsive to detecting a user request from a client system to establish a connection with a domain name, wherein said domain name identifies a NAT data processing system located behind said NAT enabled network, sending said request for said domain name to a local domain name service (DNS) server;

responsive to said local DNS server returning a fail response indicating no authoritative address for said domain name, identifying an IP address for a NAT device associated with said requested domain name from a configuration file for a host client domain for said client system;

sending a DNS query of said domain name to said NAT device at said IP address for said NAT device;

querying, from a client system located outside a NAT-enabled network, a NAT device for an address of a NAT data processing system located behind said NAT-enabled network;

automatically routing said query through said NAT device to a second DNS server that stores a plurality of private addresses for a plurality of systems located behind said NAT enabled network and said source routing address for said NAT device;

responsive to receiving said query for said address of said NAT data processing system at said DNS server, returning from said DNS server to said client system said plurality of private addresses for said NAT data processing system and a plurality of parallel data processing systems providing a same service as said NAT data processing system located behind said NAT enabled network wherein said DNS server returns an address for said NAT data processing system and said source routing address for said NAT device; [[and]]

sending packets, from said client system to said NAT data processing system at a particular [[said]] address associated with said NAT data processing system from among said plurality of private addresses with loose source routing enabled through said NAT device at said source routing address, such that said NAT data processing system behind said NAT enabled network is directly accessed by said client system from outside said NAT enabled network; and

responsive to said client system receiving a fail signal from an attempt to send packets to said NAT data processing system, sending packets from said client system to a next data processing system from among said plurality of parallel data processing systems at one of said plurality of private addresses with loose source routing enabled through said NAT device at said source routing address.

No new matter is presented through the amendments to claim 1

Applicants respectfully assert that no new matter is added through the amendments to claim 1 because the specification fully teaches each of the amended

elements. The specification, and for example paragraphs 0038, 0042, 0044, and 0047, teach each of responsive to detecting a user request from a client system to establish a connection with a domain name, wherein said domain name identifies a NAT data processing system located behind said NAT enabled network, sending said request for said domain name to a local domain name service (DNS) server; responsive to said local DNS server returning a fail response indicating no authoritative address for said domain name, identifying an IP address for a NAT device associated with said requested domain name from a configuration file for a host client domain for said client system; sending a DNS query of said domain name to said NAT device at said IP address for said NAT device; and sending packets, from said client system to said NAT data processing system at a particular address associated with said NAT data processing system from among said plurality of private addresses with loose source routing enabled through said NAT device at said source routing address, such that said NAT data processing system behind said NAT enabled network is directly accessed by said client system from outside said NAT enabled network. In addition, for example, paragraph 0039 and claim 6, teach each of responsive to receiving said query for said address of said NAT data processing system at said DNS server, returning from said DNS server to said client system said plurality of private addresses for said NAT data processing system and a plurality of parallel data processing systems providing a same service as said NAT data processing system located behind said NAT enabled network and said source routing address for said NAT device; and responsive to said client system receiving a fail signal from an attempt to send packets to said NAT data processing system, sending packets from said client system to a next data processing system from among said plurality of parallel data processing systems at one of said plurality of private addresses with loose source routing enabled through said NAT device at said source routing address.

Claim 1 is not obvious under the currently cited prior art

As previously noted, in determining obviousness, a Graham inquiry is first to be performed. As a first step of the Graham inquiry, the scope and content of the prior art are to be determined.

As to Dorenbosch, the Office Action cites paragraph 0033 as reading on the original elements of claim 1. Lines 1-3 of paragraph 0033 of Dorenbosch describe a context of a push session from a client system to a mobile device behind a NAT network, where the protocol used to start the push session is DNS. In this example, a client sends a DNS query for the IP address corresponding to the user name of the mobile device. Paragraph 0033 of Dorenbosch further describes:

the DNS query message will travel through the public network 101, the NAT 107 and the private network 105 to reach the DNS server 111. The DNS server will access its database, retrieve the mobile devices long lived address, insert the address into the DNS message body of a response DNS message, and send the response DNS message to the originator of the query. On its way to the push server or client, the response DNS message will hit the NAT 107. ... NAT however, does detect the presence of the DNS message body and invokes the help of a DNS application level gateway (DNS ALG) 109. ... The DNS ALG will identify IP addresses and port numbers that need to be substituted, request NAT to provide a dynamic address and optional port number for the mobile device, and provide substitution with the dynamic public address and port number assigned by NAT. The push server or client 103 thus obtains IP address information for to the mobile device and can continue the session and send one or more IP data packets to the mobile device, using the dynamic address as the destination IP address.

Thus, the scope of Dorenbosch is a DNS server that includes a mobile device user name/private address pairing, which is substituted by the NAT with a dynamic address in the response to a DNS request. A client system then communicates with the mobile device using the dynamic address as the destination IP address. As noted in the Office Action, Dorenbosch does not teach communication the client accessing the mobile device through an address for the mobile device with source routing through the NAT device.

As to Alkhatib, as to the element of "sending with source routing", the Office Action cites paragraph 0150, line 12 of Alkhatib and as to "through a NAT device", the

Office Action cites paragraph 0150, lines 24-25 of Alkhatib and the phrase "data can flow between hosts A and C... through NAT..."). [Office Action, p. 3] Applicants consider paragraph 0150, lines 12 and 24-25 within the context of Alkhatib as a whole, as is proper in a Graham inquiry. Alkhatib describes an entity within a NAT network that establishes a persistent connection with an agent outside the NAT network through a specific port assigned by the NAT for the communication between the entity and the agent. *Alkhatib*, paragraphs 0044, 0048, Figure 2. A host outside the NAT network communicates with the agent and the agent sends the communication through the persistent connection through a port dedicated by the NAT for the connection. *Alkhatib*, paragraph 0059. Paragraph 0149 of Alkhatib describes a situation where a persistent connection is first established with a particular destination IP address, but a paging solution is added where once host A establishes a persistent connection with a server/agent outside the NAT network, host B sends a page to the server requesting host A to establish a connection with host B, the server forwards the page to host A and then host A establishes a connection with host B, so that host B replaces the server. Paragraph 0150 of Alkhatib describes a situation in which a paging solution is applied where both hosts A and C are private entities behind NAT devices and the persistent connection established by host A with the server is for signaling purposes between the server and host A. In paragraph 0150 of Alkhatib, the NAT for host C sends a UDP packet to the NAT for host A, with an assigned port number and request to communicate, routed through the server and in response, the server pages host A with the IP address of the NAT for host C and the selected port number, over the persistent connection between the server and host A, to trigger host A to respond to host C at the port number and IP address. The NAT for host A selects a port number for the connection between host A and host C and from this point on, "data can flow between hosts A and C in both directions through NAT 12 and NAT 542 and the ports selected therein" as cited in the Office Action. *Alkhatib*, paragraph 0150, Figure 11. More specifically, paragraph 0150, lines 11-13 describe that in the server facilitating establishing a connection between the NAT devices, "In order for the port number selected by NAT 542 to become known to host A, this first UDP packet is source routed

through the server." When considered in the context of paragraph 0150 and Alkhatib as a whole, this statement indicates that the NAT for host C cannot just send a request for a connection directly to the NAT for host A, but host C can designate the destination by source routing through the server.

Applicants respectfully assert that the only explicit source routing specified in paragraph 0150 of Alkhatib is described with respect to source routing through a server, not through a NAT device. In contrast, claim 1 teaches source routing through a NAT device. Thus, Alkhatib does not stand for the proposition on page 4 of the Office Action of "the general concept of providing source routing through a NAT device is well known in the art as illustrated by Alkhatib who discloses source routing through a NAT device in an accessing method, system, and product with means."

In view of the amendments to claim 1 to incorporate the previous elements of dependent claim 6, Applicants also note the contents and scope of Dorenbosch, Alkhatib, and Dalgic in view of the previous rejection of claim 6 under the combination of these references. In particular, as to the elements of "returning, from said DNS server, a plurality of addresses of a plurality of parallel data processing systems to said NAT data processing system located behind said NAT enabled network" and "send packets to said NAT data processing system, sending packets to a first data processing system from among said plurality of parallel data processing systems at one of said plurality of addresses with routing through said NAT device" the Office action cites Dorenbosch as reciting these elements. [Office Action, pp. 12, 13] In particular, as to "returning from said DNS server, a plurality of addresses" the Office Action cites paragraph 0019, 10 lines from the bottom of Dorenbosch as describing "a plurality of mobile devices" and notes that paragraph 0033 discloses that the mobile device address is returned by the DNS. This statement by the Office Action that because the NAT device may support multiple devices, then Dorenbosch teaches responding to a DNS inquiry for a particular device with multiple addresses, is overly broad and overreaches the scope and contents of Dorenbosch. In particular, paragraph 0019 of Dorenbosch does not teach "a plurality of mobile devices", and even if Dorenbosch described that there could be multiple mobile devices behind a NAT enabled network, no portion of Dorenbosch, including

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paragraph 0033, teaches or would support a teaching of a DNS server returning a plurality of addresses for the multiple mobile devices in response to a DNS inquiry for a particular mobile device. In addition, the Office Action cites Dorenbosch paragraph 0033 alone as reading on both the elements of "sending of packets to the NAT data processing system" and also the "sending of packets to a first data processing system from among the parallel systems behind a NAT enabled network at one of the plurality of addresses." Again, this statement by the Office Action as to the scope and contents of Dorenbosch is overly broad; no portion of Dorenbosch describes a client system receiving multiple addresses and then requesting access to different ones of the devices at the addresses.

Continuing with regard to claim 6, the Office Action recites Dorenbosch as teaching the elements of claim 6, except for "responding to reception of a fail signal" and "source routing". [Office Action, p. 13] As to the element of "responding to reception of a fail signal, the Office Action recites Dalgic's description in column 2, lines 51-53 of "Further in some embodiments, a secondary gate controller can send a message to the edge router indicating the failure of the gate controller. The edge router can update the call state information after receiving the message..." The Office Action relies on this description in Dalgic for supporting "the general concept of responding to a fail signal is well known in the art as illustrated by Dalgic who discloses a fail signal in an H.323 system which does network address translation." [Office Action, p. 14] Applicants respectfully submit that Dalgic's description of a failure signal alone does not stand for the general concept of responding to a fail signal. In addition, Applicants respectfully submit that Dalgic is limited in scope to a device (edge router) receiving a failure signal and the router updating data (state information). No portion of Dalgic, nor the portion cited by the Examiner, teaches responding to a failure signal by attempting a connection through a different address.

As to a second step in the Graham inquiry, the differences between the claimed invention and the prior art are to be determined. Applicants contrast Dorenbosch, Alkhatib to the current claim limitations.

Applicants submit that one difference between claim Dorenbosch and Alkhatib and claim 1 is that Dorenbosch describes a client requesting access with the dynamic address, substituted by the NAT device, and returned in a DNS query, and Alkhatib describes source routing through a server, not through a NAT system, however, in contrast, claim 1 teaches a DNS server returning an address for a system behind the NAT enabled network and a source routing address for the NAT device and the client sending packets to the system at the address through source routing through the NAT device. In addition, claim 1 is amended to teach sending packets, from said client system to said NAT data processing system at a particular address associated with said NAT data processing system from among said plurality of private addresses with loose source routing enabled through said NAT device at said source routing address, where neither Dorenbosch nor Alkhatib teaches loose source routing enabled through the NAT device.

Applicants submit that another difference between Dorenbosch and Alkhatib and claim 1 is that paragraph 0033 of Dorenbosch describes sending the mobile name in a DNS query, which is passed through the NAT device to a DNS server, which stores the correspondence between a mobile device's user name and the device's long lived IP address, however, in contrast, claim 1 is amended to teach that responsive to detecting a user DNS query, the query is first submitted to a local DNS, and responsive to a local DNS returning fail response, an IP address for the NAT device associated with the requested domain name is identified from a configuration file for a host client domain for the client system. Dorenbosch and Alkhatib fail to teach these amended elements because neither reference, separately, or in combination, teaches first querying a local DNS server with the domain name query, and if the local DNS server does not already have the address for the domain name, then identifying the IP address for the NAT device from a configuration file for the host client domain and sending the DNS request to the IP address of the NAT device.

Applicants submit that yet another difference between Dorenbosch and Alkhatib and Dalgic, as previously noted, Dorenbosch may describe multiple mobile devices behind a NAT enabled device, but Dorenbosch describes a one-to-one correlation

between mobile device name and private address and Dorenbosch only describes returning a single private address in response to a DNS request for a particular mobile device. In contrast, the DNS server of claim 1, responsive to receiving a query for the address of the NAT data processing system, returns multiple private addresses for multiple parallel data processing systems providing a same service as the NAT data processing system and the client system, responsive to a failure to access the originally requested NAT data processing system, attempts to access another parallel data processing system from the multiple addresses returned with the DNS request. Dorenbosch fails to teach these elements because it fails to teach parallel data processing systems behind a NAT enabled network that provide a same service, it fails to teach a DNS server returning the addresses for all the parallel systems providing a same service responsive to a request for the NAT data processing system, and it fails to teach a client system attempting access to one of the parallel systems.

Applicants respectfully submit that even if Dorenbosch and Alkhatib and Dalgic are considered, as previously noted, the difference between these references and claim 1 is that Dorenbosch only describes one address returned for one DNS query and Dalgic only describes that in response to a router receiving a failure signal, the router updates state information. Dorenbosch fails to teach a client system that has accesses multiple addresses to systems that perform a same service from a single DNS request and Dalgic fails to teach responding to a failure signal by attempting to access a different system. In contrast, claim 1 teaches both a DNS server returning a plurality of private addresses for systems providing a same service in response to a DNS query for a particular system and responsive to said client system receiving a fail signal from an attempt to send packets to said NAT data processing system, sending packets from said client system to a next data processing system from among said plurality of parallel data processing systems at one of said plurality of private addresses with loose source routing enabled through said NAT device at said source routing address.

Therefore, in view of the gapping differences between the prior art and claim 1, Applicants respectfully submit that regardless of the lack of a clearly articulated rationale in the Office Action as to the original claims, in view of the amendments to the
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claims, it is clear that any statement of obviousness previously presented in the Office Action is not sufficient to support a prima facie case of obviousness as to claim 1. In addition, Applicants submit that in view of the differences between the prior art and claim 1, the differences show that the gap between the prior art and the claimed invention has become so great as to render the claimed invention nonobvious to one reasonably skilled in the art. Because claim 1 would not have been obvious to one of ordinary skill in the art at the time of the invention, Applicants respectfully request withdrawal of the rejection under 35 USC 103(a) and allowance of the claims. *KSR*, 82 USPQ2d at 1396; *Dann v. Johnston*, 425 U.S. 219, 230 (1976).

Claims 4 and 7

Applicants respectfully assert that because claims 4 and 7 are dependent upon claim 1, which are allowable as not obvious under the prior art, including Dorenbosch, Alkhatib, and Dalgic, claims 4 and 7 are also allowable by virtue of the dependency.

Conclusion

In view of the foregoing, withdrawal of the rejections and the allowance of the current pending claims is respectfully requested. If the Examiner feels that the pending claims could be allowed with minor changes, the Examiner is invited to telephone the undersigned to discuss an Examiner's Amendment.

No extension of time is believed to be necessary. If, however, an extension of time is required, the undersigned hereby authorizes the Commissioner to charge any fees for this extension to IBM Corporation Deposit Account No. 09-0447.

Respectfully submitted,

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